Using Learning Centers in Inclusion: A Usability Study of a Teacher Resource Website

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Abstract: Inclusion learning ensures that each student is provided with a differentiated curriculum that assists them to achieve learning objectives. Learning centers geared toward providing students multiple means of learning content provides students with this type of differentiated instruction. As the Hawaii Department of Education (HIDOE), moves forward with implementing inclusion classrooms in public schools, educators need support in finding resources that will assist them in effectively providing an environment in which all students can achieve. The purpose of this usability study was to create and evaluate the ease-of-use and navigation of the *Learning Centers for K-5 Inclusion Teaching and Learning* (https://learningcentersforinclusion.weebly.com/). This website contains information and resources to support inclusive teaching and learning for K-5 teachers at a public elementary school on Maui. The website was developed using Weebly, a cloud-based development platform. The design of the website was guided by the ARCS Model as well as the Gestalt's Principles of Universal Design. The usability study recruited 9 participants who gauged the navigability of the website and the effectiveness of the content found on the website. Three rounds of usability testing were conducted. Verbal feedback during the study and results collected via pre-surveys and post-surveys indicated positive user experiences including the application of the website as a tool for inclusive teaching and learning.

Statement of the Problem

Just as each child is unique, the way in which they understand, learn, and process content is diverse. The range of abilities in today's inclusive classrooms requires effective instruction that enables students to achieve learning objectives within the common curriculum (Westwood, 2016). To meet students' individual needs and enable students to achieve learning, educators differentiate instruction within the classroom setting. Differentiated instruction is taking multiple approaches to content -- input, what students learn; process -- how students learn ideas and information; and product -- output, or how they demonstrate what they have learned (Tomlinson, 2017). Furthermore, Tomlinson (2014) identifies five aspects of teaching that can be differentiated: curriculum content, teaching and learning processes, products exemplifying student learning, assessment methods, and the learning environment. As a means to fulfill these five aspects, the use of learning centers are implemented within an inclusion classroom and equipped with resources suitable for varying levels of ability (Westwood, 2016).

By the year 2020, the Hawaii Department of Education (HIDOE) put forth an initiative that required public schools statewide to increase the inclusion rate to 51%. This means that the percentage of students receiving special education services must be in the general education classroom for 80% or more of the school day. To abide by this initiative, a public elementary school on Maui has adopted inclusion classrooms. Within inclusion classrooms, a general education teacher alongside a special education teacher has teamed up to create an environment in which students receiving special education services can learn in the least restrictive way possible. However, being that this is the first year this public elementary school has fully implemented inclusion classrooms, educators need support in finding resources that will assist them in effectively providing an environment in which all students can achieve.

To further support this initiative and increase differentiation within inclusion classrooms at this elementary school, a teacher resource website containing information about inclusion and resources for mathematics and literacy learning centers was created. To ensure the efficiency of the website, a usability study was conducted to assess the ease-of-use and navigation of the website containing information and resources to support inclusive teaching and learning for K-5 teachers at a public elementary school on Maui.

Literature Review

Educators are required to provide students with effective instruction that enables them to achieve learning. As a means to do this, they employ a wide range of instructional approaches and resources, such as differentiated instruction, learning centers, and technology. Through these aspects, they can successfully implement inclusion learning in an environment in which all students can achieve.

Inclusion can be defined as “a democratic philosophy whereby all students are valued, educators normalize differences through differentiated instruction, and school culture reflects an ethic of caring and community” (Baglieri & Knopf, 2004). Research suggests that educators implementing inclusion often face barriers regarding planning time, resources, and training when implementing inclusion. Some of these barriers include being unprepared to work with students who have a diverse array of needs, inadequate resources to effectively perform tasks within the inclusive environment, negative attitudes, and a lack of support from administration (Andreason, 2014). To address these barriers, inclusion calls for a divergence in terms of instructional approaches.

One of the well-known approaches is differentiated instruction. Differentiated instruction is a supporting instructional approach that allows inclusion classrooms to be successful (Voltz, Sims, & Nelson, 2010). Differentiating instruction means “shaking up” what occurs in the classroom by proving student’s multiple approaches so that each student can learn effectively and ultimately provides students with equitable access to high-quality education. By differentiating the three curricular elements: content, process, and products, educators provide different approaches to what students learn, how they learn it, and how they demonstrate what they learned (Tomlinson, 2017). However, educators are ill-prepared in planning and delivering a high-quality education that is all-inclusive

and differentiated. They need time, which is scarce, to develop the knowledge, skills, tools, and practices necessary to successfully implement this type of environment (Tomlinson & Allan, 2000). Strategies, such as learning centers, that derive from shared need, insight, and experience, will demonstrate support for educators in a difficult (and rewarding) profession (Tomlinson & Allan, 2000).

Learning centers are another well known instructional approach utilized as a means for differentiation in inclusion classrooms. Learning centers encourage differentiation in process and products as well as allows multiple means of receiving and demonstrating knowledge (Voltz, Sims, & Nelson, 2010). Centers are defined as a place "where a variety of activities introduce, reinforce, and/or extend learning" (Opitz, 1994). With learning centers, teachers can use a process that specifically addresses diverse learners by differentiating their instruction across and within various learning center stations (Voltz, Sims, & Nelson, 2010).

The use of technology within education is an additional means to differentiating instruction within inclusion classrooms. Technology in education can be a powerful, transformative learning tool that can reinvent approaches to learning, decrease equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners. Enabled by technology, educators have the opportunity to enhance collaboration across communities and around the world as a means of accessing instructional materials, resources, and tools (U.S. Department of Education, 2017).

To ensure the ease-of-use and navigation of the overall site in relation to the specific users, a usability study was conducted. As explained by Krug (2010), a usability study is when the developer observers a person using the website they created with the intention of making it easier to use or prove it is easy to use. Usability studies collect two major types of data: quantitative and qualitative. Quantitative data looks to "prove something", such as the quality of the site in comparison to others and this is done through "measuring things", such as how long it takes for the user to complete a task. To prove something, quantitative data is collected through a rigorous, well-defined protocol involves a large sample size of participates that would actually use the site. A "Do-It-Yourself Usability Test" on the other hand is qualitative and it is focused on gathering data for the purpose of improving your product rather than proving something. This type of qualitative testing is informal, utilizes a smaller participant pool and does not involve collecting data. Nonetheless, the sole purpose of a usability study was to find problems that need to be fixed on a product.

Methodology

Research Questions/Goals. The goal of the usability study was to gauge participants' ability to navigate and locate information on the teacher resource website, more specifically the effectiveness and participant satisfaction with the website. Participants were asked to complete seven tasks during the study session. These tasks are derived from the following research questions:

1. Are learners able to efficiently and easily navigate between pages utilizing the toolbar?
2. How easy or difficult is it to find various learning centers on the teacher resource website?

Tasks completed by participants during the usability study provided both qualitative and quantitative data that informed iterations of the website and assisted in improving the overall usage. During each session, participants were given a chance to share their perspectives on any aspect of the website through an open-ended interview.

Content Analysis. The teacher resource website utilized existing content found on the internet, e.g., information about differentiation and inclusion classrooms. There are various mathematics and literacy centers for educators to download and utilize, e.g., centers for improving reading, writing, addition, subtraction, etc. The website was also comprised of relevant videos, graphics, text, links, and resources to inform and engage participants. A wireframe of the intended website was created using Google Drawing (see Appendix A).

This study incorporated the cognitive and affective domains of learning as a means to encourage participation, feedback, and site usage. In the cognitive domain, participants displayed intellectual skills that assist them in completing tasks. Basic technological skills include prior computer usage/functions and knowledge of accessing and navigating a website, such as a homepage. For characteristics in the affective domain participants were asked to share their personal perspectives of the website as well as required them to remain motivated throughout the usability sessions.

Participants. The target audience for this study were current K-5 educators at a public elementary school on Maui that work closely with students in various roles and environments ranging from inclusion classrooms, growth block groups, small group sessions, and learning center environments. A total of nine females participated in this study. All participants were over the age of 18, with the largest group four (44.4%) being over the age of 50. The number of years' participants were associated with the elementary school varied. However, majority of participants have been associated with the school for more than 2 years. Additional participant demographics included computer proficiency, internet confidence, internet access type, and internet activity (see Appendix D).

Participants were recruited in-person, by phone, and by email (see Appendix B). Participants were provided with the purpose of the study, what was required of them should they choose to participate, as well as necessary consent forms. Google Form links for a pre-survey and demographic survey was attached to the initial email and participants completed them prior to the agreed upon meeting. Participants who agreed to take part then received a confirmation email (see Appendix C) to schedule a testing day and time. Participants were informed that they could stop their involvement in the study at any time if they began to feel uncomfortable. Additional information regarding compensation, benefits, and risks in participating in the study was also included in an

attached letter. Lastly, participants received a follow-up email after the study thanking them for their participation and a request to complete a post-survey in Google Forms.

Evaluation Instruments. To gather quantitative data, a pre and post survey on Google Forms was distributed to participants (see Appendix E-F). The pre-survey incorporated demographic questions, such as the participants age, role within the school, and interactions with computers. The post-survey focused on gathering data on user experience characteristics using the Likert scale. To identify usability issues, a usability protocol geared toward gathering the severity of problems in terms of navigation and ease-of-use was utilized. This protocol used the recommended rating scale by Molich, Jeffries and Dumas (2007) as well as measure the average task completion time by participants. As recommended by Sauro (2001), average task completion times measure the total duration users spend on a task and often assists the designer in diagnosing usability problems. The usability protocol consisted of one pre-task, five tasks, and one supplemental task: identifying what the website is about, navigating the homepage, locating tabs, specific centers, and downloading centers (see Appendix G). Qualitative data was also collected throughout and at the end of testing through participants' verbal responses in a short interview (see Appendix H).

Project Design. To develop the website that was utilized in this usability study, the ARCS Model as well as the Gestalt's Principles of Universal Design was employed. These design strategies served as a guide to create a website that was both motivational and visually effective for the target audience. According to Nielson (2002), consistency is one of the most powerful usability principles, in that the user will know what will happen based on prior experiences. This idea assisted in the design of the *Learning Centers for K-5 Inclusion* wireframe, prototype, and any modifications made to the prototype during each iteration of the usability study in defining the site navigation and ease-of-use.

The ARCS Model of Motivational Design is a problem-solving tool aimed to assist in helping learners want to learn and develop (Keller, 1987a). The website addressed *attention* through variability in which a wide range of multimedia (images, videos, etc.) was utilized within the website. *Relevance* for user's was provided through familiarity in which the content on the site was presented to them in a way that was relatable to their job positions at the school. *Confidence* was met through self-growth and encouragement of professional development in that teachers could utilize the resources provided on the website within their own classrooms. Lastly, *satisfaction* was accomplished through immediate application in which teachers could apply what they learn on the website in real-world situations that may occur in their classrooms. The goal of the website design was aimed toward motivating teachers to continue gaining knowledge about learning centers used in inclusion classrooms.

The Gestalt Principles of Universal Design, (1) similarity, (2) continuation, (3) closure, (4) proximity, and lastly, (5) common fate was utilized in the overall design of the *Learning Centers for K-5 Inclusion* website in terms of elements such as placement of graphics, color, content, layout, and background. Recommendations by Gkogka's (2018) on how to use Gestalt's design principles was also used to develop the web design. In the

following paragraphs, the application of Gestalt's Principles is explained in relation to the *Learning Centers for K-5 Inclusion* website.

The principle of *similarity* focuses on organizing and classifying objects that have similar characteristics together to show their relation. Similarity also focuses on visual characteristics such as size, shape, color, or value in terms of the way they communicate information to the user. To communicate a user-friendly interface, the website incorporated a color scheme containing orange, blue, and green throughout its entirety. These colors were utilized because they communicated to the user emotions such as confidence, warmth, dependability, and growth. Moreover, the size and shape of buttons and images were similar to one another to create a balanced look. The navigation bar also focused on the use of this principle so that each tab was organized similar to one another as it assisted in keeping the overall navigation of the site consistent.

The second principle, *continuity*, focuses on creating order within a website as well as guiding the user through different content segments. The linear arrangement and layout of content was used to create continuity among pages and assisted in ease-of-use in that the user were able to differentiate between content. For example, the centers were organized in 2 rows and 3 columns by skill (i.e. reading, writing , addition, etc.) to make it more efficient for users to preview the center before clicking on it.

The third principle, *closure*, is utilized to decrease the number of elements needed to communicate information in a way that makes a design more engaging. Closure was incorporated in the website through iconography. For example, an icon that signified "download" was used under each center, so that the user could download the resource to utilize in their own classrooms effectively and efficiently. Through utilizing an icon for this function, it also made the overall design more simplified.

The fourth principle, *proximity*, states that objects or items close to one another will be viewed as related as well as will have an impact on the visual communication and user experience. Therefore, the content on the website was separated through the use of white spaces and borderlines in a way that helped the information flow and helped the users achieve their goals more efficiently.

The final principle, *common fate*, focuses on the movement of elements in a synchronized fashion, meaning at the same direction, time, and speed. Common Fate is also utilized to establish relationships between different groups or states. This principle was used in relevance to the navigation bar at the top of the website in that tabs were expandable. In the website design, the expandable menus were utilized to group centers by grade levels as well as expanded in the same direction when clicked.

A wireframe of the *Learning Centers for K-5 Inclusion* website (see Appendix A) was created using Google Drawings, a free, web-based diagramming software, to produce a general representation of the website's navigation (i.e., menus and buttons), and content placement. This wireframe was used as a guide when creating the prototype of the website.

The prototype of the *Learning Centers for K-5 Inclusion* website was developed using Weebly, a free website builder with customizable templates, domains, and easy to use tools. Weebly was chosen because it allowed the designer to incorporate the necessary elements of Gestalt's principles in a way that allowed for efficient navigation and ease-of-use. Weebly was also chosen as the platform because it is the common platform utilized by teachers at the school.

Procedures. Prior to beginning recruitment and the usability study, the researcher completed CITI Program courses and submit the required information and documentation to the University of Hawai'i Institutional Review Board (IRB) eProtocol (See Appendix I). Recruitment and testing began once IRB approval for the study was given. Three rounds of testing comprised of three participants in each session was conducted, with the use of Krugs (2005) usability protocol script. Prior to the usability testing sessions, participants were given the pre-survey as well as a copy of the consent form (See Appendix J). The project timeline was revised to reflect the incorporation of round three (see Appendix K). All test sessions were conducted in a classroom at the public elementary school on Maui during at an agreed upon time. Once consent was given, testing began with the researcher providing a brief introduction to the purpose of the usability study and information about general testing procedures.

Participants were encouraged to think out loud while progressing through the tasks. Data indicating the time task completion of the session was collected. At the end of each testing, there was a brief interview session to gather qualitative data. The post-survey was emailed to participants after each session with responses to the user experience of the design layout, navigation, ease of use, effectiveness, and participation.

Following the usability testing session with participants, the researcher analyzed the observational notes and screen recordings to determine if improvements to the website were needed. Revisions were made between and after iterations based on rounds one, two, and three severity ratings and user experience feedback. The data gathered and collected from participation was used solely for this usability study and electronically filed and secured on a password protected computer. Once the research and data analysis was completed, video and audio records were destroyed.

Results

Data collected was both qualitative and quantitative in nature. Quantitative data consist of data collected from the three rounds of usability sessions. Following each round, the data was analyzed using Molich, Jeffries and Dumas (2007) recommended rating scale, in which the tasks were rated by the severity of the problem. The three-point rating scale rated the usability tasks problem severity as minor, serious, or catastrophic. A minor usability issue briefly delayed the users. A serious issue delayed the users significantly, but still allowed them to complete tasks. A catastrophic issue prevented the users from completing the tasks. As an additional component, the average task completion time was collected and analyzed as a means to deliver results. As recommended by Sauro (2011),

this strategy assisted in identifying the slowest and fastest task time with determining the minimum and range in seconds (sec.).

Following the analysis, the results of the usability study was presented through various visual graphs, such as pie charts and bar graphs. To display information related to demographic data such as gender and age, pie charts were utilized. Bar graphs were utilized to present the quantitative data from the usability sessions, such as the time it took users to complete tasks and the problem severity ratings. To present qualitative data such as interview responses visual word clouds were utilized.

Round 1 Usability Tasks Results. Tasks completion times were completed under 10 sec. and rated no issues for the Pre-Task, Task 1 thru 4, and Task 6. Task 5 showed the most difficulty with one serious rating recorded at 35 sec. and one minor rating recorded at 14 sec. The researcher observed the delay stemmed from not knowing whether to continue browsing through the literacy centers page following Task 4 and the user not realizing that they needed to utilize the toolbar to navigate to the mathematics center tab to complete Task 5. No changes were made based on these results.

Table 1 represents first-round individual and average task completion scores and rating. The shortest average task time for round one was Task 3 at 1.3 sec. and rated no issue. Task 5 was recorded with the longest average completion time at 18.7 sec., rated minor.

Table 1
Task Time Individual and Average: Round 1

Participant	Pre-Task	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
1	6	4	3	2	10	35**	2
2	8	2	3	1	9	7	3
3	3	4	2	1	9	14*	2
Average	5.7	2.7	2.7	1.3	9.3	18.7*	2.3

Note. Values represent completion in seconds

*Minor: Delayed user briefly.
** Serious: Delayed user significantly but eventually allowed the user to complete the task.
*** Catastrophic: Prevented user from completing their task.

Pre-Task: Figure out by browsing through the homepage what the website is about
Task1: Locate information about what inclusion learning is
Task 2: Locate information about literary centers
Task 3: Click on "Literacy Centers" using the navigational toolbar
Task 4: Locate a literacy learning center
Task 5: Locate a mathematics learning center
Task 6: Download a learning center

Round 1 User Experience. Following the first-round testing, the researcher analyzed 48 participant user experience responses. Table 2 provides detail of round one's individual and section averages. Feedback indicated satisfaction ratings for the design layout,

navigation, ease of use, effectiveness and participation with the average score of 5.0 in each section.

Table 2
Post Survey User Experience: Round 1

	Characteristics	Average (Avg.)	Standard Deviation (S.D.)	Section Average (Sec. Avg.)
Design Layout	Website is visually appealing	5	0	5
	Text is clearly written	5	0	
	Media is interesting and related to the topic	5	0	
	Organization of information is clear	5	0	
Navigation	Main navigation is easily identifiable	5	0	5
	Toolbar labels are clear and concise	5	0	
	Number of button/links are reasonable	5	0	
	Links are consistent and easily identifiable	5	0	
Ease of Use	Website is user-friendly	5	0	5
	Website has a clean and simple presentation	5	0	
Effectiveness	Information on the website is useful	5	0	5
	Information was easy to find on the website	5	0	
	I felt comfortable navigating the website	5	0	
	I would use the learning center on the website with my students	5	0	
	Website is effective in providing information about inclusion learning	5	0	
Participation	Instructions and guidelines for participation in the usability testing were clear	5	0	5

1= Strongly Disagree; 2= Somewhat Disagree, 3= Somewhat Agree; 4= Agree, 5= Strongly Agree

Round 2 Usability Tasks Results. The Pre-Task and Task 1 thru 3 were observed with completed times of under 10 sec. and rated no issues. Task 4 was seen with one minor rating at 15 sec. This delay was due to the uncertainty of which navigational tool to utilize, the toolbar or the buttons at the bottom of the sub-pages. Task 5 was rated with two serious ratings at 31 sec. and 41 sec. which was recorded as round two's lengthiest time, as well as a minor rating of 12 sec. Observation indicated that difficulties identifying that the scenario was indicating them to find a mathematics center caused the delay. Additionally, users that were utilizing the buttons at the bottom of the screen to navigate had difficulty identifying that they needed to use the toolbar at the top of the screen to change to the mathematics center tab. Based on these results, revisions to the toolbar font size and boldness were made. Task 6 was rated with two no issues and one minor rating at 13 sec. The delay was due to the user wanting to find a center to download on another page. Task 3 was observed with the shortest average task time at 1.7 sec. The longest average time was Task 5 at 28 sec.

Table 3 represents individual and average task completion scores and ratings for the second round of testing and includes round one average results. In comparison to round one, round two was observed with an increase in average times for the Pre-Task, Task 2, 3, 5, and 6. Of these increases, Task 5 showed the greatest increase of 9.3 sec. Task 1 remained the same and Task 4 showed a decrease of 1 sec.

Table 3
Task Time Individual and Average: Round 2

Participant	Pre-Task	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
4	7	3	10	2	8	31**	3
5	8	3	2	1	15*	41**	13*
6	9	2	4	2	5	12*	6
Average	8	2.7	5.3	1.7	8.3	28**	7.3
Average Rnd 1	*5.7*	*2.7*	*2.7*	*1.3*	*9.3*	*18.7**	*2.3*

Note. Values represent completion in seconds

*Minor: Delayed user briefly.
** Serious: Delayed user significantly but eventually allowed the user to complete the task.
*** Catastrophic: Prevented user from completing their task.

Round 2 User Experience. Following round two of testing, the researcher analyzed 48 participant user experience responses. Table 4 provides detail of round two's individual and section averages. Feedback indicated no change in satisfaction ratings from round one for the design layout, navigation, ease of use, effectiveness and participation with the average score of 5.0 in each section. However, 2 participants commented that they were unclear about who the website was geared toward. To clarify this, the title of the website and welcome paragraph was revised to include that the website was for K-5 teachers.

Table 4
Post Survey User Experience: Round 2

	Characteristics	Avg.	S.D.	Sec. Avg.	Rnd 1
Design Layout	Website is visually appealing	5	0	5 (=)	5
	Text is clearly written	5	0		
	Media is interesting and related to the topic	5	0		
	Organization of information is clear	5	0		
Navigation	Main navigation is easily identifiable	5	0	5 (=)	5
	Toolbar labels are clear and concise	5	0		
	Number of button/links are reasonable	5	0		
	Links are consistent and easily identifiable	5	0		
Ease of Use	Website is user-friendly	5	0	5 (=)	5
	Website has a clean and simple presentation	5	0		
Effectiveness	Information on the website is useful	5	0	5 (=)	5
	Information was easy to find on the website	5	0		
	I felt comfortable navigating the website	5	0		
	I would use the learning center on the website with my students	5	0		
	Website is effective in providing information about inclusion learning	5	0		
Participation	Instructions and guidelines for participation in the usability testing were clear	5	0	5 (=)	5

1= Strongly Disagree; 2= Somewhat Disagree, 3= Somewhat Agree; 4= Agree, 5= Strongly Agree
(=): identical to previous round

Round 3 Usability Tasks Results. The final round of testing was observed with the Pre-Task and Tasks 1 thru 3 rated no issues with completion times under 10 sec. Task 4 was seen with one minor rating at 15 sec. and one serious rating at 53 sec. The minor delay was due to the user needing the scenario to be repeated. The serious delay was due to uncertainty as to where to find the navigational toolbar, the user thought that the components to navigate were within the literacy centers subpage. However, no revisions were necessary as the task was completed shortly after the user recognized that the buttons at the bottom of the screen indicated the information that was needed to successful complete the task. Task 5 was recorded with one minor rating at 16 sec. Navigating to the mathematics tab contributed to the delays as noted in rounds one and two. Task 6 indicated a serious task completion time of 55 sec., which resulted in the longest individual task completion time of all three rounds of testing. Similar to the delay in round two, the user wanted to find a center to download on another page. Task 2 was observed with the shortest average times at 1.7 sec. Task 4 noted the longest average time at 25.7 sec.

Table 5 explains the third-round individual and section average task completion times and includes round one and two average results. Round three times resulted in navigation time reductions for Tasks 2 and 5. The average task completion time of Task 1 remained the same throughout all three rounds of testing. In contrast, the average task completion times of Pre-Task, and Tasks 4 and 6 indicated increases.

Table 5
Task Time Individual and Average: Round 3

Participant	Pre-Task	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
7	7	2	1	2	15*	9	55**
8	9	2	1	1	53**	7	2
9	7	4	2	2	9	16*	5
Average	7.7	2.7	1.3	1.7	25.7**	10.7*	20.7**
Average Rnd 1	*5.7*	*2.7*	*2.7*	*1.3*	*9.3*	*18.7**	*2.3*
Average Rnd 2	*8*	*2.7*	*5.3*	*1.7*	*8.3*	*28***	*7.3*

Note. Values represent completion in seconds

*Minor: Delayed user briefly.
** Serious: Delayed user significantly but eventually allowed the user to complete the task.
*** Catastrophic: Prevented user from completing their task.

Round 3 User Experience. Table 6 illustrates round three user experience results. Examination of the data showed section average satisfaction ratings for the design layout, the lowest rating, at 4.59, navigation at 4.75, ease of use at 5.0, effectiveness at 4.87, and study participation at 5.0. Third round feedback resulted in an overall positive user experience of the ease of use and study participation. There was a decrease in satisfaction for design layout, navigation and effectiveness, in comparison to round one and two.

Table 6
Post Survey User Experience: Round 3

	Characteristics	Avg.	S.D.	Sec. Avg.	Rnd 1	Rnd 2
Design Layout	Website is visually appealing	4.33	0.94	4.59 (=↓)	5	5
	Text is clearly written	4.67	0.47			
	Media is interesting and related to the topic	4.67	0.47			
	Organization of information is clear	4.67	0.47			
Navigation	Main navigation is easily identifiable	5	0	4.75 (=↓)	5	5
	Toolbar labels are clear and concise	4.67	0.47			
	Number of button/links are reasonable	4.33	0.94			
	Links are consistent and easily identifiable	5	0			
Ease of Use	Website is user-friendly	5	0	5 (=)	5	5
	Website has a clean and simple presentation	5	0			
Effectiveness	Information on the website is useful	5	0	4.87 (=↓)	5	5
	Information was easy to find on the website	5	0			
	I felt comfortable navigating the website	5	0			
	I would use the learning center on the website with my students	5	0			
	Website is effective in providing information about inclusion learning	4.33	0.94			
Participation	Instructions and guidelines for participation in the usability testing were clear	5	0	5 (=)	5	5

1= Strongly Disagree; 2= Somewhat Disagree, 3= Somewhat Agree; 4= Agree, 5= Strongly Agree
(=): identical to previous round, (=↓): identical to previous round, decrease from highest score

Overall Usability Task Results. Results in Figure 1 exemplifies the overall average severity of the usability study problems for the seven tasks completed by nine participants. The Pre-Task thru Task 3 was rated no issues. Task 4 and 6 indicated both minor and serious results. Task 5 sustained the most problems with six participants reporting task completion difficulties.

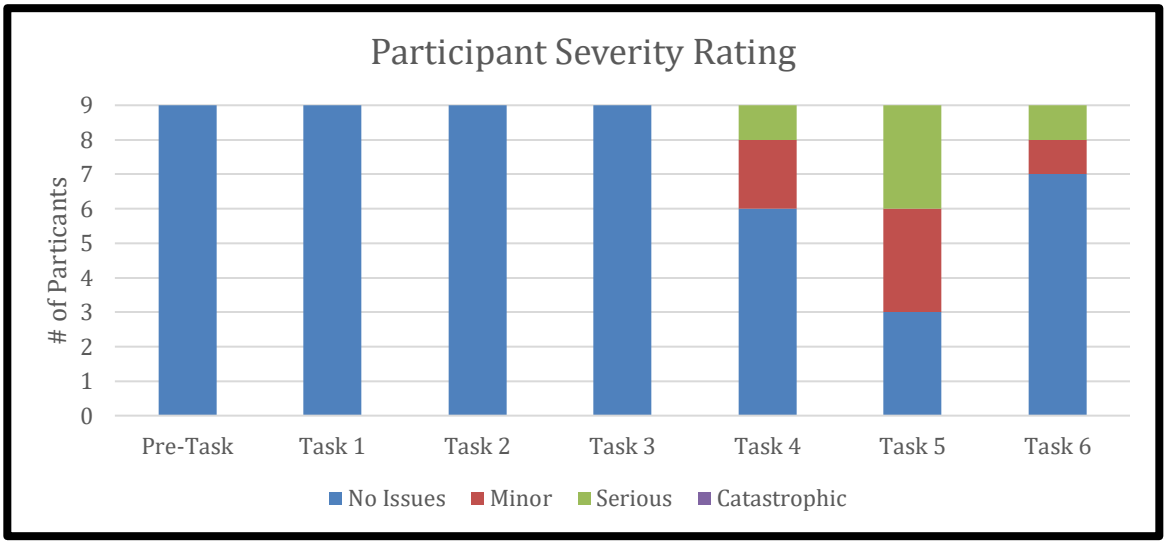

Figure 1. Participant severity of problems rating scale results.

The usability study overall average task completion times and variance for rounds one, two and three are depicted in Figure 2. Task 5 sustained the longest average task completion time of 19.13 sec. Results showed Task 2 with the shortest completion time of 1.57 sec. Task 5 averaged the most significant variance at 7.98 sec.

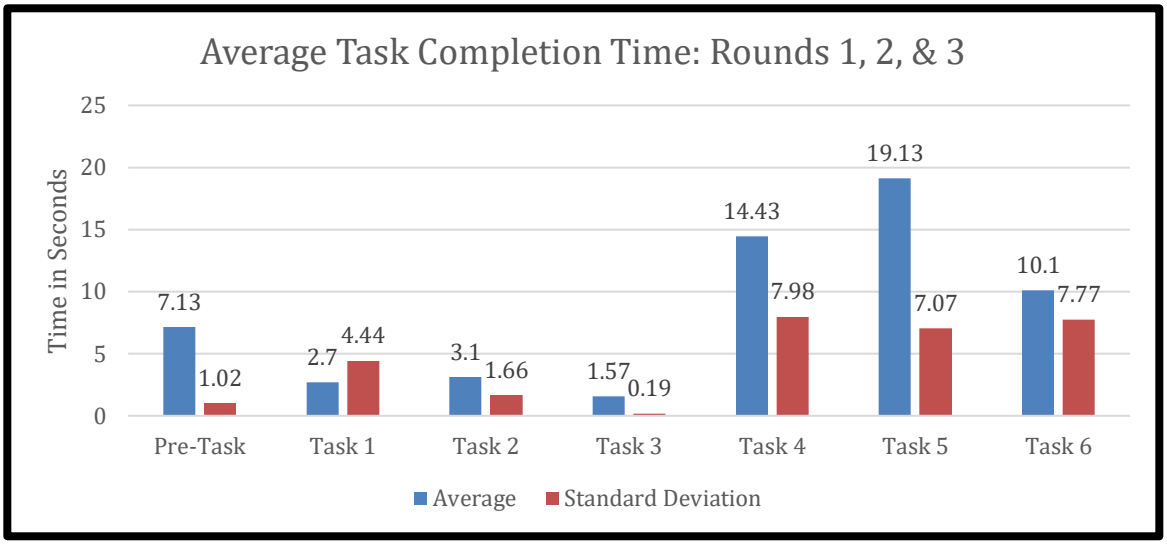

Figure 2. Average Task Completion Times: Rounds 1, 2, & 3

Overall User Experience. Details for overall usability results are specified in Figure 3. The highest satisfaction rating of 4.96 occurred with effectiveness, and the lowest with design layout rated at 4.86. This data specifically indicated a response to the two research questions in this study, in that users agreed that the site was ease to use and navigate.

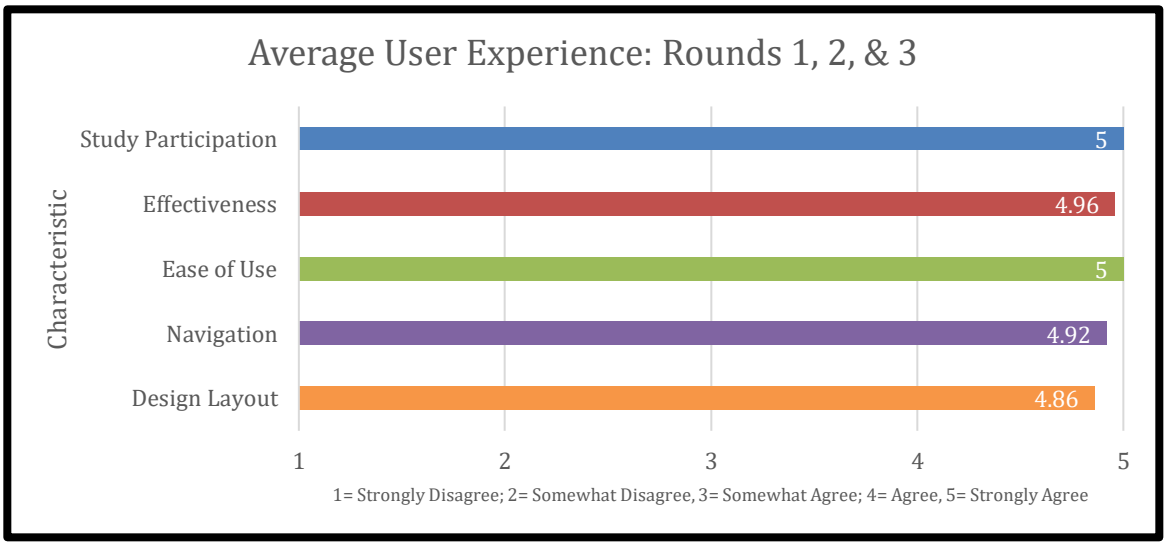

Figure 3. Post survey user experience: average rounds 1, 2, & 3

Discussion

Participants found the *Learning Centers for K-5 Inclusion Teaching and Learning* website a useful resource that they can utilize within their classrooms as a means to differentiate instruction and meet the needs of all their students. As for the usability aspect of the project, participants found the website easy to use and navigate and were overall satisfied with their participation in the study. Through this usability study, the researcher learned just how essential the navigational toolbar is in the over usability of a website. Although the design provided users with multiple means to navigate through the use of buttons at the bottom of the pages it affected navigation. When users no longer had the buttons, they were unsure of how to proceed to other subpages on the website. Through this study, the researcher also learned the strengths and weaknesses of the website platform, Weebly. Weebly was simple, easy to use, and teachers at the school were familiar with it. However, Weebly limited some of the design capabilities, such as the size/shape of the buttons and the download functions. In terms of content, teachers that participated in the study found the website and resources useful to their teaching and look forward to utilizing it in the future. In future iterations of the website, additional content, such as more centers and centers in other content areas (science, social studies, etc.) can be incorporated. The usability of the website was tested on desktop and laptop computers. Future testing could assess using mobile devices.

Conclusion

The goal of this usability study was to gauge participants' ability to navigate and locate information on the teacher resource website, more specifically the effectiveness and participant satisfaction with the website. Through usability testing with users, improvements driven by data were made to the website to fit their needs. The *Learning Centers for K-5 Inclusion Teaching and Learning* website is an important resource for teachers to have as it will assist in differentiating instruction and meeting the needs of all their students. It has the potential to ensure equity among all students in elementary as well as assist teachers in providing an environment in which all students can achieve.

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Appendix A

WIREFRAME

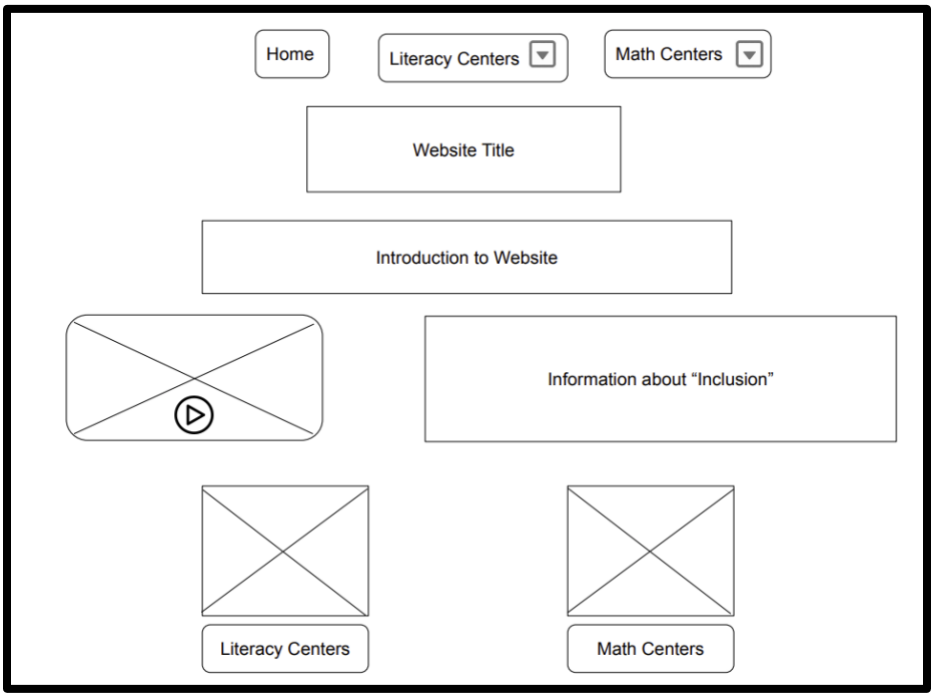


Figure 1. Home Screen

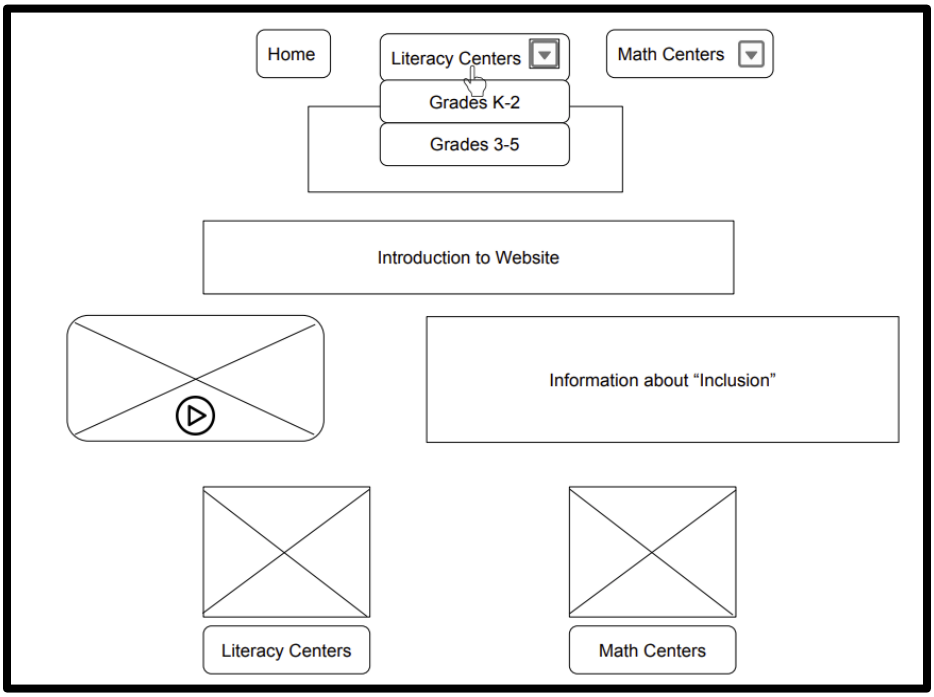


Figure 2. Expanded Menu

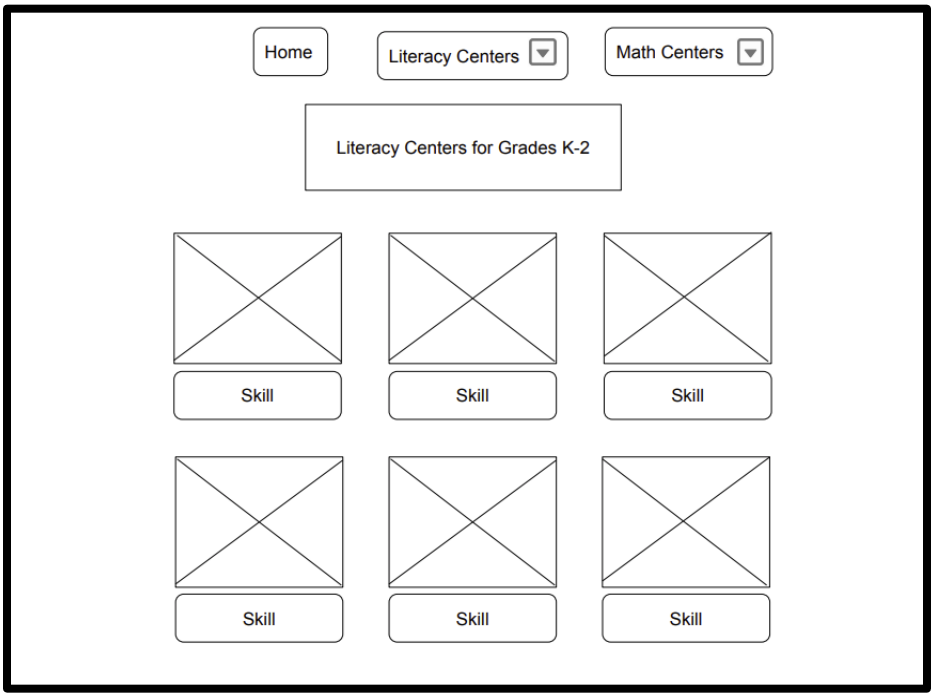


Figure 3. Sample page containing center organization by skill

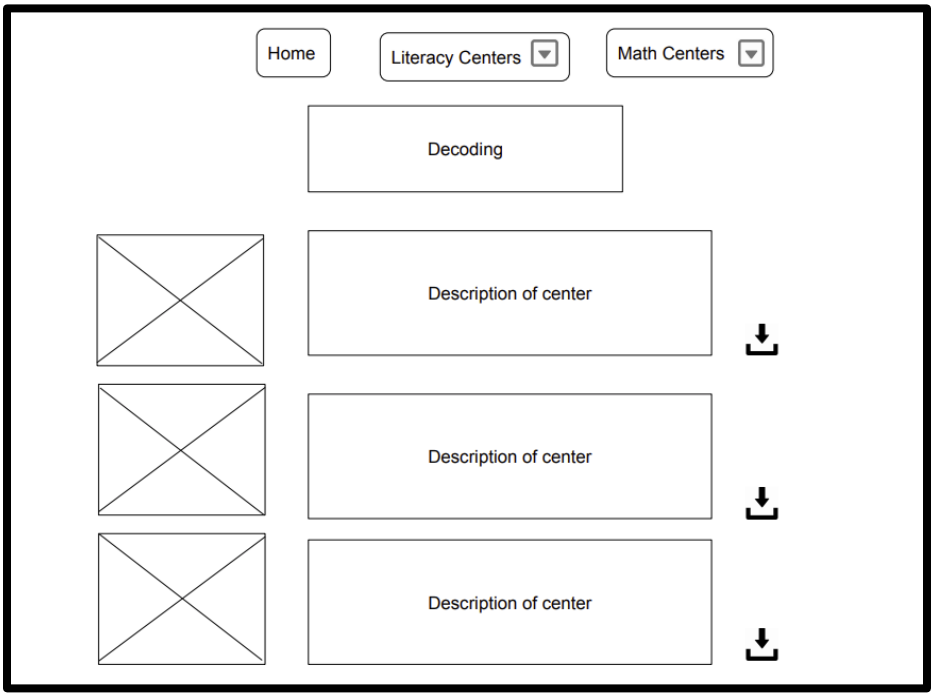


Figure 4. Sample center page with download feature

Appendix B

RECRUITMENT EMAIL

Hello [participant name]!

My name is Tiana Guerrero and I am a graduate student at the University of Hawai‘i at Mānoa in the College of Education. I am conducting a usability study for my Master’s degree in Learning Design and Technology research project.

The focus of my study is the ease of use of a teacher resource website for faculty and staff interested in information and resources to support inclusive teaching and learning. In the study, I will be asking faculty and staff to participate by completing several short tasks using the website. I will also ask questions about navigating the website, the layout, usefulness, the user experience and ease of use. The approximate time of each session is 30-45 minutes.

As a part-time teacher at your school, I would like to invite you to participate in the study. The usability study session will take place at our elementary school at an agreed-upon time. All information will be kept strictly confidential. A report of the study will be available to faculty and staff at the completion of the project. By participating in this research project your role as a faculty or staff status will not be impacted.

Interested in participating? Please see the attached consent form and pre-survey for more information on the study and what you will be expected to do. If you agree to participate, please complete the consent form then the pre-survey or if you have questions, please reply to this email at tianague@hawaii.edu.

Thank you,
Tiana Guerrero

Appendix C

CONFIRMATION EMAIL

Aloha [participants name],

Thank you again for volunteering to participate in my usability study research project. Your participation will help improve the website to be better adapted to its intended audience.

You are scheduled to meet with me on:

DATE/TIME: Choose date and time or e-mail respond

LOCATION: In-person @ My Classroom

Notes:
- Please complete this pre-survey if you haven't already done so.
- If you are unable to attend our scheduled meeting for whatever reason, please notify me as soon as possible (at least 24 hours).

***Please reply to this email to confirm our scheduled meeting.**

Mahalo,
Tiana Guerrero

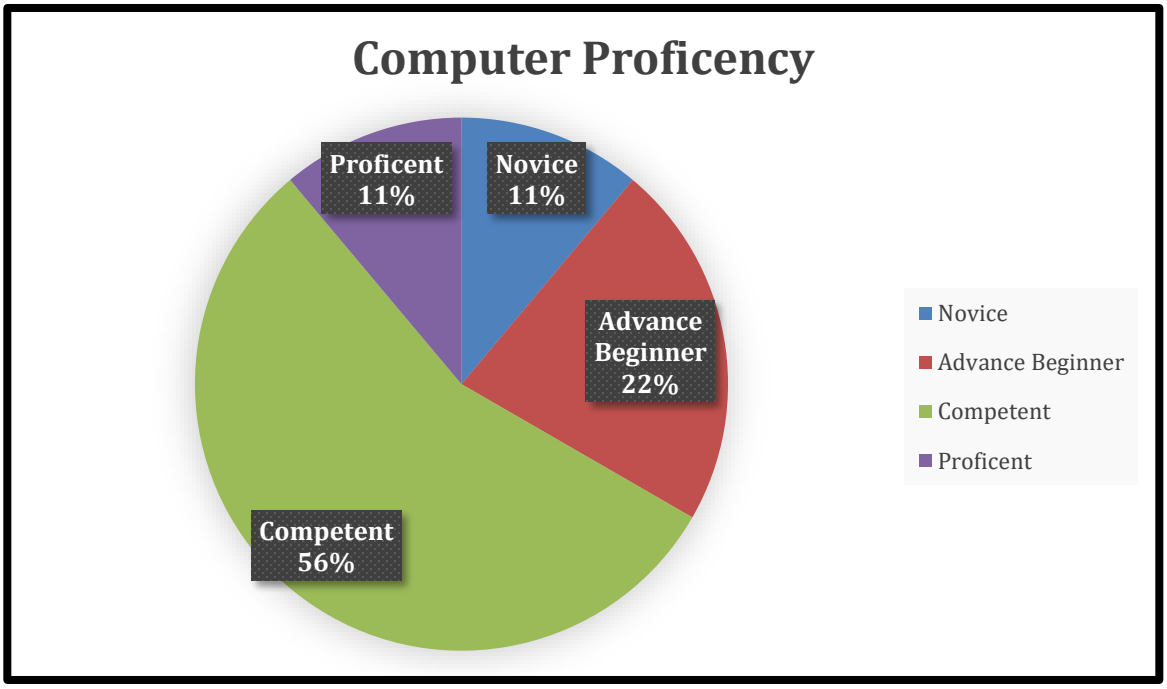
Appendix D

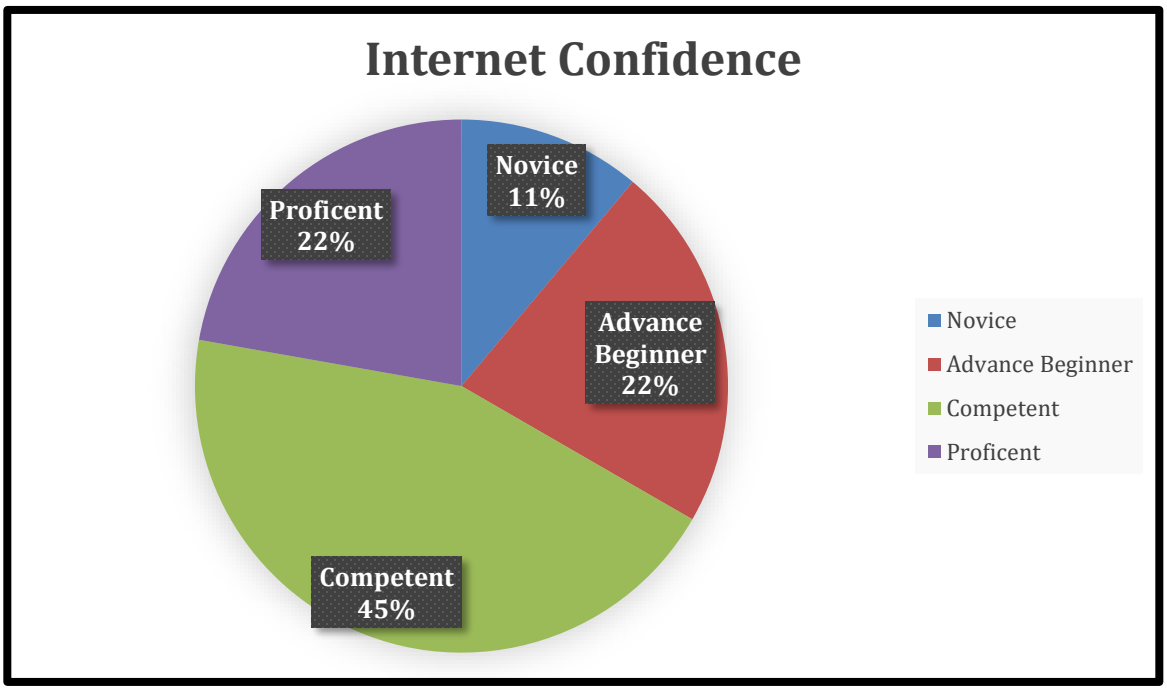
PARTICPANT DEMOGRAPHICS

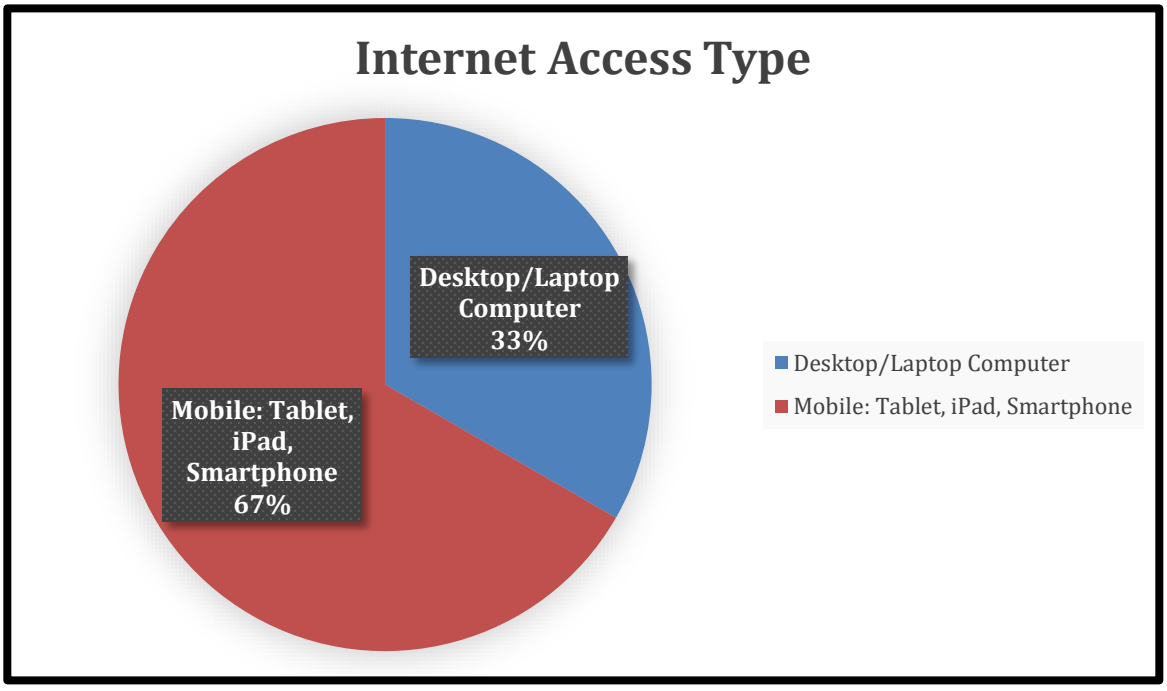
Table 1.

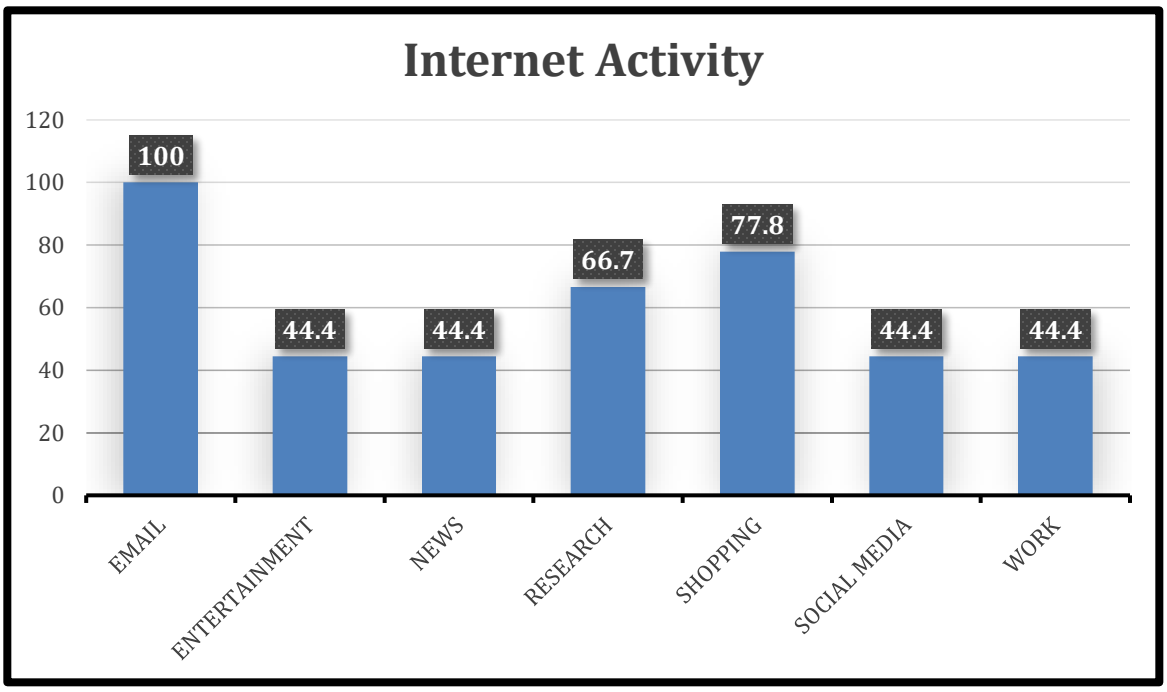
Participant Gender, Age, and Number of Years Associated with School

Characteristic	Number	Percent
Gender		
Male	0	0%
Female	**9**	**100%**
Age		
18-29	1	11.1%
30-39	1	11.1%
40-49	3	33.3%
50+	**4**	**44.4%**
Number of Years		
0-12 mo.	1	11.1%
2-5 yrs.	**3**	**33.3%**
6-10 yrs.	2	22.2%
10+ yrs.	**3**	**33.3%**




Internet Confidence
Novice 11%
Advance Beginner 22%
Competent 45%
Proficent 22%
Novice
Advance Beginner
Competent
Proficent


Internet Access Type
Desktop/Laptop Computer 33%
Mobile: Tablet, iPad, Smartphone 67%
Desktop/Laptop Computer
Mobile: Tablet, iPad, Smartphone


Internet Activity
120
100
80
60
40
20
0
100
44.4
44.4
66.7
77.8
44.4
44.4
EMAIL
ENTERTAINMENT
NEWS
RESEARCH
SHOPPING
SOCIAL MEDIA
WORK

Appendix E

PRE-SURVEY

The purpose of this pre-survey is to gather preliminary data in preparation for the usability study of the resource website containing information and resources to support inclusive teaching and learning for K-5 teachers at an elementary school on Maui.

This ten-question pre-survey will take approximately 5 minutes or less to complete. To help protect your confidentiality, this survey will not contain information that will personally identify you. The results of this survey will be used for purposes of my final research project at the University of Hawai‘i at Mānoa Learning Design and Technology (LTEC) 690 course.

Thank you for your participation!

1) **I identify as**
   a) Male
   b) Female
   c) Rather not say or Other

2) **Age**
   a) 18 – 29
   b) 30 – 39
   c) 40 – 49
   d) 50 and above

3) **What is your position/role at this school: _____?**

4) **How long have you been associated with this elementary school?**
   a) 0 – 12 months
   b) 2 – 5 years
   c) 6 – 10 years
   d) More than 10 years

5) **How would you rate your proficiency using computers?**
   a) Novice
   b) Advanced beginner
   c) Competent
   d) Proficient
   e) Expert

6) **How would you rate your level of confidence using the internet?**
   a) Novice
   b) Advanced beginner

c) Competent
d) Proficient
e) Expert

7) How often do you use the internet daily?
a) I do not use the internet
b) Less than 3 hours
c) 3 – 6 hours
d) 7 – 10 hours
e) 10 or more hours

8) How do you usually access the internet?
a) Desktop/Laptop Computer
b) Mobile: Tablet, iPad, Smartphone
c) Other: _____

9) What do you do on the internet? (check all that apply)
a) Email
b) Entertainment
c) News
d) Research
e) Shopping
f) Social Media
g) Work
h) Other: _____

10) Where do you usually access the internet?
a) Home
b) Work
c) Other: _____

Appendix F

POST SURVEY

Thank you for your participation in the usability study. Please complete this post survey. Your participation is voluntary.

The purpose of this post survey is to further measure your experience and provide insight about what work well and improvements that may need to be made.

This 16-question post survey will take approximately 10 minutes or less to complete. To help protect your confidentiality, this survey will not contain information that will personally identify you. The results of this survey will be used for purposes of my final research project at the University of Hawai‘i at Mānoa Learning Design and Technology (LTEC) 690 course.

Thank you again for your participation!

1-Strongly Disagree 2-Somewhat Disagree 3-Somewhat Agree 4- Agree 5-Strongly Agree

Design Layout

1) Website is visually appealing
2) Text is clearly written
3) Media (i.e. images, videos) are interesting and relatable to topic
4) Organization of information is clear

Navigation

1) Main navigation is easily identifiable
2) Toolbar labels are clear and concise
3) Number of buttons/links are reasonable
4) Links are consistent and easily identifiable

Ease of Use

1) Website is user-friendly
2) Website has a clean and simple presentation

Effectiveness

1) Information on the website was useful
2) Information was easy to find on the website
3) I felt comfortable navigating the website
4) I would use the learning centers on the website with my students
5) Website is effective in providing information about inclusion learning

Participation

1) Instructions and guidelines for participating in the usability testing were clear

Appendix G

USABILITY TEST PROTOCOL & INTERVIEW

Aloha [Participant Name]. My name is Tiana, and I'm going to be walking you through this session today.

Before we begin, I have some information for you, and I'm going to read it to make sure that I cover everything.

The purpose of my project is to evaluate a resource website containing information and resources to support inclusive teaching and learning for K-5 teachers at a public elementary school on Maui. As you use the website, I will be asking that you think out loud as much as possible: to say what you're looking at, what you're trying to do, and what you're thinking. We will be using Zoom to screen record your actions on the computer screen and verbal comments made during the session. Don't worry; we won't trade those recordings to anyone. I will also be asking for additional feedback during a quick interview once the session is over. Please remember is that I am evaluating the WEBSITE and not you. There are no right or wrong answers, so please be honest with your feedback, whether good or bad as it will help us to improve the website. The entire session should not take more than 30-45 minutes.

If you have any questions as we go along, just ask them. I may not be able to answer them right away, since I'm interested in how people do when they don't have someone who can help. But if you still have any questions when I'm done I'll try to answer them.

And if you need to take a break at any point, just let me know. Do you have any questions so far?

Is it okay to begin recording now?

Okay, let's begin!

[Start the Screen Recorder]

Pre-Task: Navigating the Homepage

Alright! What you're seeing here is the website's homepage. First, I am going to ask you to scan and scroll through the page and tell me what you see. If you point your cursor to where your eye is on the page, we can follow along as you look. You can scroll around with your mouse, but please don't click on anything just yet. As you do so, please think aloud as you reflect upon the following questions:

- What do you notice first? What strikes you about it?
- What are your initial impressions about the layout of this page and what do you think of the colors, graphics, photos, etc.?

- What are your thoughts of the text on this page?

Feel free to move around the page. Without clicking on anything yet, please describe the options you see on the homepage and what you think they do. When you are done exploring the homepage, please let me know.

Thank you!

- What do you think this website is about? Why do you think so?
- Whom is it for? What makes you think so?
- What do you think people can do on this website? How can you tell so?
- If you could click on something on this homepage, where would you click first?

Thank you! Do you have any other comments for this homepage?

a. Task completed: Yes / No
b. Task completion in seconds_____

_____Minor: Delayed user briefly.
_____Serious: Delayed user significantly but eventually allowed user to complete task.
_____Catastrophic: Prevented user from completing their task.

Task #1: Locating Information

Now that we have established what this site is about, I want you to try to locate information about what inclusion learning is. Where would you look to locate this information? As you navigate around, please think aloud and tell us what you do and see.

Thank you!

- Was the information about inclusion learning easy to locate and understand? Why or why not?

Thank you! Do you have any other comments for this task in particular?

a. Task completed: Yes / No
b. Task completion in seconds_____

_____Minor: Delayed user briefly.
_____Serious: Delayed user significantly but eventually allowed user to complete task.
_____Catastrophic: Prevented user from completing their task.

Task #2: Locating Information About Literacy Centers

Next, you are trying to locate information about literacy centers, where would you look to find these answers? Just point to where you would go, but stay on the homepage for now and don't actually click anything.

Thank you!

- Was the navigational tool bar easily accessible and/or visible? Why or why not?

Thank you! Do you have any other comments for this task in particular?

a. Task completed: Yes / No
b. Task completion in seconds_____

_____Minor: Delayed user briefly.
_____Serious: Delayed user significantly but eventually allowed user to complete task.
_____Catastrophic: Prevented user from completing their task.

Task #3: Navigating Using the Tool Bar

Now that we have located various aspects of the website, we are going to focus on some pages individually. Looking at the homepage, click on "Literacy Centers".

Thank you! Do you have any other comments for this task in particular?

a. Task completed: Yes / No
b. Task completion in seconds_____

_____Minor: Delayed user briefly.
_____Serious: Delayed user significantly but eventually allowed user to complete task.
_____Catastrophic: Prevented user from completing their task.

Task #4: Locating Literacy Center

I will now be giving a scenario that will require you to find learning centers on the website. In this scenario, a few kindergarten grade students are struggling with learning their letters and you want to find a learning center that can assist them. As you navigate to find this information, please think aloud and tell us what you do and see.

Thank you!

- Were the literacy centers organized in a way that was easily accessible? Why or why not?
- While completing this task, were there any buttons, centers, or aspects that were confusing? How?

Thank you! Do you have any other comments for this task in particular?

a. Task completed: Yes / No
b. Task completion in seconds_____

_____Minor: Delayed user briefly.
_____Serious: Delayed user significantly but eventually allowed user to complete task.
_____Catastrophic: Prevented user from completing their task.

Task #5: Locating Mathematics Center

I will now be giving another scenario that will require you to find learning centers on the website. In this scenario, a few 3rd grade students are struggling with multiplying

numbers and you want to find a learning center that can assist them. As you navigate to find this information, please think aloud and tell us what you do and see.

Thank you!

- Were the mathematics centers organized in a way that was easily accessible? Why or why not?
- While completing this task, were there any buttons, centers, or aspects that were confusing? How?

Thank you! Do you have any other comments for this task in particular?

a. Task completed: Yes / No
b. Task completion in seconds_____

_____Minor: Delayed user briefly.
_____Serious: Delayed user significantly but eventually allowed user to complete task.
_____Catastrophic: Prevented user from completing their task.

Task # 6: Downloading A Center

For this final task, I would like you to download one of the learning center resources. As you navigate to do this task, please think aloud and tell us what you do and see.

Thank you!

- Was the download aspect of the website easy to access and utilize? Why or why not?

Thank you! Do you have any other comments for this task in particular?

a. Task completed: Yes / No
b. Task completion in seconds_____

_____Minor: Delayed user briefly.
_____Serious: Delayed user significantly but eventually allowed user to complete task.
_____Catastrophic: Prevented user from completing their task.

That was the last task for the website. It would be great if you could spend a minute or two looking around at the pages you have not seen yet on the website. Please let me know when you're done.

Awesome! Thank you very much. I have some more questions to ask you before we wrap up the session.

1. What did you like best about the site?
2. What did you like least about the site?
3. What was your overall impression about navigating the website? Easy or difficult? Why? Can you give me some examples?
4. What is your overall opinion about the learning centers on this website? What is your suggestion particularly for the centers that you saw on the website?
5. Would you recommend this website to your friends and colleagues? Why or why not?
6. Do you have any suggestions to improve the website? Do you have any other comments?

I just want to say thank you very much for your time today. If you do have any questions about the study moving forward, please feel free to email me. If you don't have any more questions right now, I'm going to go ahead and conclude our research today. Thank you!

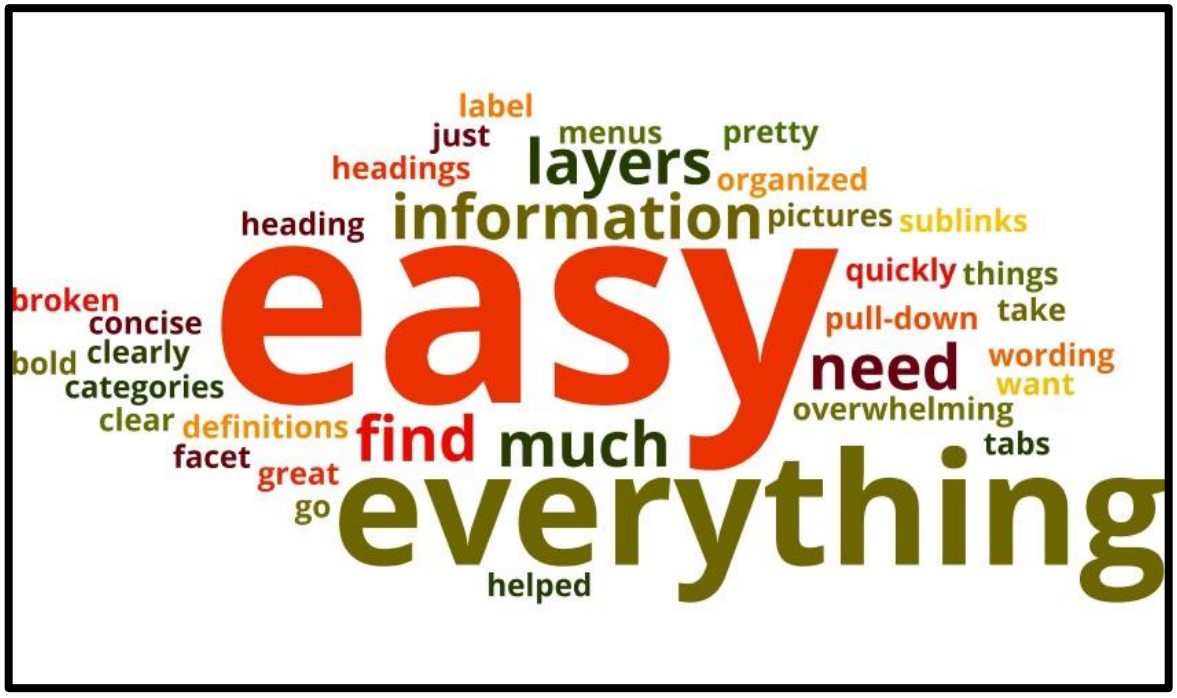
[Stop the Screen Recorder]

Appendix H

QUALITATIVE DATA VERBAL RESPONSE FROM INTERVIEW

"What did you like best about the website?"

"What was your overall impression about navigating the website?"



Appendix I

CITI PROGRAM CERTIFICATES

CITI PROGRAM

Completion Date 02-Apr-2019
Expiration Date 01-Apr-2022
Record ID 31139743

This is to certify that:

Tiana Guerrero

Has completed the following CITI Program course:

Human Subjects Research (HSR) (Curriculum Group)
Exempt Researchers and Key Personnel (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of Hawaii

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w0a3a594d-3aaf-42aa-964a-eff7fdb44791-31139743

CITI PROGRAM

Completion Date 02-Apr-2019
Expiration Date 01-Apr-2022
Record ID 31139742

This is to certify that:

Tiana Guerrero

Has completed the following CITI Program course:

Information Privacy Security (IPS) (Curriculum Group)
Exempt Researchers and Key Personnel IPS (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

University of Hawaii

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?we3a8a993-4632-4f0c-8443-b0eb3c132a67-31139742

Appendix J

INFORMED CONSENT

Aloha! My name is Tiana Guerrero and you are invited to take part in a research study. I am a graduate student at the University of Hawai'i (UH) at Mānoa in the College of Education, Learning Design and Technology (LTEC) program. As part of the requirements for earning my graduate degree, I am doing a research project.

What am I being asked to do?
If you participate in this project, you will be asked to navigate through the resource website while being prompted by a series of tasks and scenario questions. The questions are intended to evaluate the ease of use and user satisfaction of the website. You will be encouraged to share your thoughts out loud as you navigate the website, which will assist me in gaining further insights into the user experience. Your actions and verbal comments will be screen-captured and recorded using Zoom. Once all scenarios are completed, you will be asked interview questions to collect information about the overall website. Following the usability testing session, you will be asked to complete a post-survey intended to gather feedback pertaining to the design layout, navigation, ease of use and effectiveness of the website as a whole. The entire usability study, including surveys, will last about 30-45 minutes.

Taking part in this study is your choice.
Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you. Your choice to participate or not participate will not affect your rights to services at the elementary school.

Why is this study being done?
The purpose of my project is to evaluate a resource website containing information and resources to support inclusive teaching and learning for K-5 teachers at a public elementary school on Maui.

What will happen if I decide to take part in this study?
The usability test will consist of navigate through the resource website while being prompted by a series of tasks and scenario questions. You will also be asked to complete a short interview following the test session. Lastly, you will be asked to complete 2 surveys that will gather demographic information and feedback pertaining to the website. The entire usability study, including surveys, will last about 30-45 minutes.

Only you and I will be present during the usability test session. With your permission, I will audio-record the session so that I can later transcribe and analyze the responses. You will be one of about 15 people that will participate in this study. With your permission, I will also screen record the session so that I can analyze your actions while navigation on the website.

What are the risks and benefits of taking part in this study?
I believe there is little risk to you for participating in this research project. You may become confused or frustrated when completing the various usability tasks. You may also become stressed or uncomfortable answering any of the interview questions or discussing topics with me during the interview. If you do become stressed or uncomfortable, you can skip the task/question or take a break. You can also stop the usability test session or you can withdraw from the project altogether.

There will be no direct benefit to you for participating in this usability study. The results of this project may help improve the *Learning Centers for K-5 Inclusion* website to benefit future students.

Privacy and Confidentiality:
I will keep all study data secure on a password-protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

Once the research is complete, all recordings will be destroyed. The research completion date is set for April 2020. When I report the results of my research project, I will not use your name. I will not use any other personal identifying information that can identify you. I will use pseudonyms (fake names) and report my findings in a way that protects your privacy and confidentiality to the extent allowed by law.

Future Research Studies:
Even after removing identifiers, the data from this study or will not be used or distributed for future research studies.

Questions:
If you have any questions about this study, please email me at tianague@hawaii.edu. You may also contact my advisor, Dr. Curtis Ho, at curtis@hawaii.edu or 808.956.7771. You may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu. to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit http://go.hawaii.edu/jRd for more information on your rights as a research participant.

If you agree to participate in this project, please sign and date this signature page and return it to: Tiana Guerrero at tianague@hawaii.edu

Keep a copy of the informed consent for your records and reference.

Signature(s) for Consent:

I give permission to join the research project entitled, "*Using Learning Centers in Inclusion: A Usability Study of a Teacher Resource Website*."

Please initial next to either “Yes” or “No” to the following:

_____ Yes _____ No I consent to be audio-recorded for the usability testing portion of this research.

_____ Yes _____ No I consent for the screen to be recorded for the usability testing portion of this research.

Name of Participant (Print): _____

Participant’s Signature: _____

Signature of the Person Obtaining Consent: _____

Date: _____

Mahalo!

Appendix K

PROJECT TIMELINE

Date	Task
August 2019	• Ensure CITI Training is complete and valid. • Prepare Milestones 1 & 2 (Needs Assessment, Literature Reviews) ○ Creating a wireframe of website Identify Critical Friends (CF) Group
September 2019	• Complete Assignment 1 - Past Project Review ○ Use reviews as a guide when brainstorming project • Prepare Milestone 3 & 4 (Participants, Purpose/Goal Statement) ○ Review & edit purpose statement using template • Prepare Draft Idea Presentation • Complete Assignment 2 - Idea Presentation for Faculty ○ Review faculty feedback and edit draft accordingly • Prepare Milestone 5 (Usability tasks) ○ Refine Purpose Statement/Goals & Research Questions ○ Create a Usability Protocol/Script with usability tasks Complete Assignment 3 - Milestones 1-5 for CF Review
October 2019	• Complete Assignment 4 - Milestones 1-5 Feedback for CFs ○ Review feedback from CFs and make revisions accordingly • Prepare Milestone 6 (Methodologies) ○ Create evaluation instruments (surveys on Google Forms) ○ Refine Usability Protocol/Script and tasks • Complete Assignment 5 - Draft 1 Masters Project Proposal for IRB for CFs Review • Complete Assignment 6 - Draft 1 Masters Project Proposal for IRB Feedback for CFs Review ○ Review feedback from CFs and make revisions accordingly
November 2019	• Complete Assignment 7 - Peer Review Rubric 1 • Prepare Milestone 7 (Project Design Strategies) ○ Review and determine instructional strategies ○ Determine visual design and layout of website ○ Determine website platform • Complete Assignment 8 - Draft 1 Masters Project Proposal for IRB for Instructor Review

	• Begin building website prototype on platform
	• Complete Assignment 9 - Milestones 7 & 8 for CF Review
	• Complete Assignment 10 - Milestones 7 & 8 Feedback for CFs
	  ○ Review feedback from CFs and make revisions accordingly
	• Complete Assignment 11 - IRB Application for Instructor Review
	• Prepare Milestones 1-9
	• Revise Masters Project Draft and IRB application based on instructor feedback
	• Complete Assignment 12 - Draft 2 Masters Project Proposal for CFs Review
	• Complete Assignment 12 - Draft 2 Masters Project Proposal for Feedback for CFs
	  ○ Review feedback from CFs and make revisions accordingly

December 2019	• Complete Assignments 14 - 19 • Finalize project plans for approval via UH IRB • Finalize project website prototype

January 2020	• Upon IRB approval begin project implementation conduct the usability study with participants
	  ○ Recruit participants (email)
	  ○ Consent forms (email)
	• Conduct Round 1 of Usability Test
	  ○ Interview users for feedback
	  ○ Compile and analysis feedback, make revisions accordingly

February 2020	• Conduct Round 2 of Usability Test
	  ○ Interview users for feedback
	  ○ Compile and analysis feedback, make revisions accordingly

March 2020	• Conduct Round 3 of Usability Test
	  ○ Interview users for feedback
	  ○ Compile and analysis feedback, make revisions accordingly
	• Complete final paper draft

April 2020	• Create TCC Presentation Slides • Conduct TCC Presentation
May 2020	• Complete final paper